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AUTHOR Delaney, Anne Marie
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ABSTRACT

This paper presents the results of a study that investigated challenges institutional researchers encounter in their careers, resources for coping with these challenges, and the impact of the challenges on engagement in policy. Data were from a mailed survey sent to 304 institutional researchers in the northeastern United States to which 221 replied (73%). Results identify concerns about the amount of work, limited opportunity for advancement, and producing quality work within time constraints as the most prevalent challenges. However, those who have a mentor, strong professional network, and an independent job structure can meet such challenges more effectively and engage in policy development. (Contains 4 figures, 2 tables, and 10 references.) (Author/SLD)

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Institutional Researchers: Challenges, Resources and Opportunities

Anne Marie Delaney

Director of Institutional Research, Babson College

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Correspondence concerning this paper should be addressed to:

Anne Marie Delaney

Babson College

Academic Affairs - Horn Library 313

Wellesley, MA 02457-0310

delaneya@Babson.edu or (781) 239-6481

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ABSTRACT

This paper presents the results of a study that investigated challenges institutional researchers encounter in their career; resources for coping with these challenges; and the impact of these challenges on engagement in policy. Results identify concern about the amount of work, limited opportunity for advancement, and producing quality work within time constraints as the most prevalent challenges. However, those who have a mentor, a strong professional network and an independent job structure can more effectively meet such challenges and actively engage in policy development.

Institutional Researchers: Challenges, Resources And Opportunities

Introduction

Purpose. This paper presents the results of a study that investigated challenges institutional researchers encounter in their career and the effects of these challenges on institutional researchers' engagement in policy. Relationships between professional challenges and policy engagement were investigated within the context of a model that included personal characteristics, professional resources, and job quality. The major research questions addressed in this study are:

- How do work-related challenges affect institutional researchers' engagement in policy?
- Do work-related challenges vary by personal characteristics, level of position, and use of resources or networks of professional support?
- Do professional support mechanisms have a countervailing, positive effect on job quality and policy engagement?
- How well do personal characteristics, level of position, challenges and resources predict job quality and policy engagement?

In the context of this study, professional challenges encompass immediate concerns as well as difficulties experienced during the course of one's career. Three major areas addressed include: concerns about one's current job; difficulty in securing support for one's values and work; and pressure to compromise to meet career demands. The goal of this research is not only to identify and understand the problems, but also to propose creative strategies to meet these challenges and thus enhance institutional researchers' professional status and effectiveness.

Review of the Literature

During the last three decades, researchers have investigated the problems and challenges institutional researchers encounter in their professional practice. Gubasta (1976), who produced one of the earliest writings on this topic, offers a framework for pursuing this line of research. He defines institutional research as a social process influenced by organizational and operational factors.

Gubasta claims that institutional researchers, while aiming to achieve the goal of influencing policy, must cope with the conflicting pressures of administrative needs versus management responsibilities, internal versus external data reporting, and research versus data analysis. Further, these conflicting expectations require that researchers clarify their role as initiators of, rather than reactors to, information requests. To cope effectively with these conflicting pressures, Gubasta recommends that institutional researchers exercise leadership, be proactive by anticipating problems before they occur, recommend ways problems can be avoided, and employ data to project alternative impacts of decisions before they are made. Institutional research should involve a constant search for subject matter and inquiry about institutional policies and issues.

Other analysts also recognized the importance of the social or political context during the early development of the institutional research profession. Chase (1979) observed that, if institutional researchers are to become effective organizational specialists, professional development programs need to be offered that will encompass the required political and communication skills. Such programs must address the influence of values and the dynamics of the internal and external environment on the institutional researcher's judgment regarding the kinds of information to be collected, the process by which the information is to be obtained, and the manner in which it is to be presented. While an institutional researcher's methodological knowledge and research skills are essential to success, other skills are required to respond effectively to changing needs, contextual

differences and political pressures. This perspective has enduring relevance for the success of the institutional research profession.

Focusing on the source of institutional researchers' problems, Storrar (1981) discovered evidence of role conflict. She found that institutional researchers at large public universities most frequently defined their actual role as ' proactive administrator ' - a role high on political responsiveness and policy advocacy. However, they most frequently cited ' expert administrator ' as their preferred role - a role low on political responsiveness and high on policy advocacy. Thus, institutional researchers preferred a role opposite to their actual role in terms of political responsiveness. Findings from this study also revealed that only a small minority identified with a career orientation of an institutional researcher. Given the role conflict and low career identification among institutional researchers, the author concludes that academic and professional development programs need to stress interaction skills of political acuteness, communication, organizational behavior and a sense of professional identify.

Sanford's (1983) observations regarding sources of stress and coping strategies for institutional researchers are also very relevant to the present study. He conceptualizes two major types or sources of stress: the Coordination Syndrome and Effective Invisibility. The first source of stress, the coordination syndrome, refers to the tendency for institutional researchers to work with and depend upon a number of other persons and offices without having direct control over them. Uncertainty and anxiety can result from heavy dependence on others to do one's job. The second source of stress, effective invisibility, can be a consequence of the way institutional researchers conduct their work - often behind the scenes under the guise of neutrality with little recognition. Sanford proposes strategies for coping with these stresses, including treating these stresses as real opportunities rather than threats and looking beyond the immediate task to the goal which lies ahead. He suggests that

coping effectively with challenges requires that institutional researchers think constructively, take initiative, and focus on the ultimate goal of influencing policy and decision-making.

In the early 1990's, Huntington and Clagett (1991) investigated the most prevalent problems experienced by institutional researchers. Participants in their study most frequently cited the following specific obstacles to their effectiveness: staffing and workload problems, access and quality of information systems, access to decision-makers, the perceived role of institutional research, and inadequate training of staff.

Matier, Sidle and Hurst (1995) offer a perspective that may enhance our understanding of the context producing challenges for institutional researchers. They suggest that environmental complexity, rapid change and broader participation in decision-making have created a new culture of decision-making and this requires an expansion in the traditional institutional research role of decision support. Institutional researchers must exercise leadership in defining their work and expand the sphere of influence by assuming roles as information architects, change agents, and consultants of choice within their institution.

Hurst, Matier and Sidle (1998) suggest that institutional researchers expand their repertoire of skills and knowledge to include an understanding of group dynamics and process facilitation skills. They propose that institutional researchers serve as facilitators of the learning process and play a key role in promoting the success of teams to ensure that decisions are grounded in the support of institutional constituents. This collaboration will potentially generate greater influence on the quality of the outcome and thus enhance institutional researchers' success in influencing decision-making and policy development. Such initiatives may strengthen institutional researchers' ability to meet the challenges of demanding workloads and expand the possibilities for influence and professional advancement.

Recently, Volkwein (1999) offers an insightful conceptual framework for understanding the opposing pressures affecting higher education institutions and the resultant challenges experienced by institutional researchers. He identifies three kinds of opposing pressures: the academic culture versus the administrative culture, internal demands versus external demands, and institutional needs versus professional needs.

As Volkwein observes, differences between the academic and administrative culture have significant implications for institutional research. While the institutional research office may engage in theory-driven social science research, it is more often called to be a practice-oriented agency for the administration. Also, while the administrative culture is generally hierarchical and places a high value on efficiency, the academic culture is more collegial and places a high value on quality and effectiveness.

Institutional researchers may also experience conflict in attempting to respond to both external and internal demands for information and in fulfilling both institutional and professional roles. Institutional researchers may be hired primarily to fulfill an institutional role, to produce accurate numbers and descriptive statistics. However, they are trained for and find fulfillment in the challenges of research and analyses, the professional role. Within the context of these dualities in higher education, institutional researchers are required to fulfill very different and sometimes conflicting roles as information authority, policy analyst, spin doctor, and scholar and researcher. Understanding the reasons for conflicts among these roles may be the first step in developing effective strategies to overcome conflict, meet challenges and achieve success.

Methodology

Data Source. Data for this study are based on results from a mailed survey sent to 304 institutional researchers in the Northeast; 221 returned completed surveys yielding a response rate of 73 percent. The respondent group reflects the demographic, educational and professional diversity of the institutional research profession. Of the 221 respondents, 41 percent are male and 59 percent are female; 40 percent possess a doctorate; 42 percent have a master's degree; and 18 percent hold a bachelor's degree. Respondents represent a range of professional positions. Eleven percent hold titles at the level of dean to vice-president; 50 percent are directors; 10 percent are associates; 16 percent are analysts, coordinators or mangers; and 13 percent are assistants or research and technical specialists.

Participants represent a range of experience in institutional research from less than one year to 28 years; the mean and median are 9 and 8 years respectively. Some 38 percent have worked five years or less and another 38 percent have worked 11 years or more in institutional research. Of the 155 who reported type of institution, 39 percent have spent most of their career at a university, 32 percent at a four-year college, 18 percent at a two-year college, and 11 percent at some other type of institution. Of the 190 who reported the affiliation of their institution, 42 percent have worked primarily at a public institution compared with 36 percent at a private, non-religious institution and 22 percent at a private religious institution.

The characteristics of institutional researchers in the Northeast reflect some similarities with the national profile of institutional researchers (Lindquist, 1999). In terms of years of experience, nationally about one-third have worked five years or less and 40 percent have worked 11 years or more in institutional research, and in the Northeast, 38 percent have worked five years or less and

another 38 percent have worked 11 years or more in institutional research. Regarding type of institution, about two-thirds or more nationally and in the Northeast work at a four year college or university and close to one-fifth work at a two year college. With respect to level of education, nationally about one-half hold the doctorate and 40 percent have a master's degree, while in the Northeast, 40 percent have a doctorate and 42 percent hold a master's degree.

However, differences do exist with respect to gender and institutional affiliation (Lindquist, 1999). While the percent of females has increased nationally over the last decade to 48 percent, this is still lower than the 59 percent female representation in this study. The most notable difference between the regional and national profiles involves institutional affiliation. Nationally over 70 percent work at public institutions, while in the Northeast the figure is only 42 percent. The high percent of institutional researchers working at private institutions is consistent with the exceptionally large number of private higher education institutions in the Northeast.

Analytical Techniques. Analyses were conducted with individual survey items and computed scales. The scales represent the following constructs: engagement in policy, job quality and professional challenges. Bivariate techniques - correlation, chi-square, t-test, and analysis of variance - examined the relationships between personal characteristics, level of position, resources and challenges. Path analysis assessed the direct and indirect effects of personal characteristics, level of position, resources and challenges on job quality and on engagement in policy.

Scale Development. Factor analyses were conducted to establish construct validation, that is, to identify the unidimensional or multidimensional constructs underlying the items related to professional challenges, job quality, and engagement in policy. Common factor analysis or the principal axis factor method was employed. An oblique method of rotation, oblimin, was used to rotate the factors. This method was chosen since it assumes that the factors are correlated.

Results from factor analyses indicated which individual items were correlated with each other and what underlying dimensions were represented in the data. Factors were selected that explained a substantial amount of variance and included at least two or more items. Scales were then created by combining similar items into one measure. Generally, items with factor loadings of .5 or higher on a particular factor were chosen to be included in a scale. Prior to using the scales in the analysis, alpha reliability coefficients were computed to determine the internal consistency of the scales.

Table 1 presents the names, statistical properties, and correlations among these scales. Items comprising these scales are presented in Appendix A. The reliability of these scales is very high with coefficients ranging from .80 to .90. As reflected in the mean scale scores, the most prevalent challenge among institutional researchers involves experiencing overwhelming demands in their current jobs, followed by managing conflict between work and personal/family needs, coping with limited opportunity and dealing with threats to quality standards. The moderately high means on engagement in policy and job quality suggest that many institutional researchers are involved in policy and have a quality work experience.

As shown in Table 1, correlation analyses results identified statistically significant correlations among some of the scales. A strong positive correlation exists between experiencing overwhelming demands and managing conflict between work and family. A moderate, significant correlation also exists between coping with limited opportunity and dealing with threats to quality standards. Experiencing overwhelming demands and managing conflict between work and family are positively correlated with engagement in policy. Coping with limited opportunity and dealing with threats to quality standards are negatively correlated with job quality and engagement in policy. Finally, a strong, positive correlation exists between job quality and engagement in policy.

Table 1

A. Statistical Properties of the Scales

	Mean	St. Dev.	Reliability	No. of Items	Range of Responses Low-High
Professional Challenge Scales					
a. Experiencing Overwhelming Demands	3.25	1.07	.87	3	1-5
b. Managing Conflict between Work and Family	2.56	.95	.83	3	1-5
c. Coping with Limited Opportunity	2.48	1.00	.89	6	1-5
d. Dealing with Threats to Quality Standards	2.07	.77	.80	2	1-5
Work Experience Scales					
e. Job Quality	3.72	.70	.86	12	1-5
f. Engagement in Policy	3.24	.82	.89	10	1-5

B. Correlation among the Scales

	a	b	c	d	e	f
a. Experiencing Overwhelming Demands		.56***	-	-		.21**
b. Managing Conflict between Work and Family			-	.17*		.25***
c. Coping with Limited Opportunity				.44***	-.47***	-.26***
d. Dealing with Threats to Quality Standards					-.43***	-.23***
e. Job Quality						.61***
f. Engagement in Policy						

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

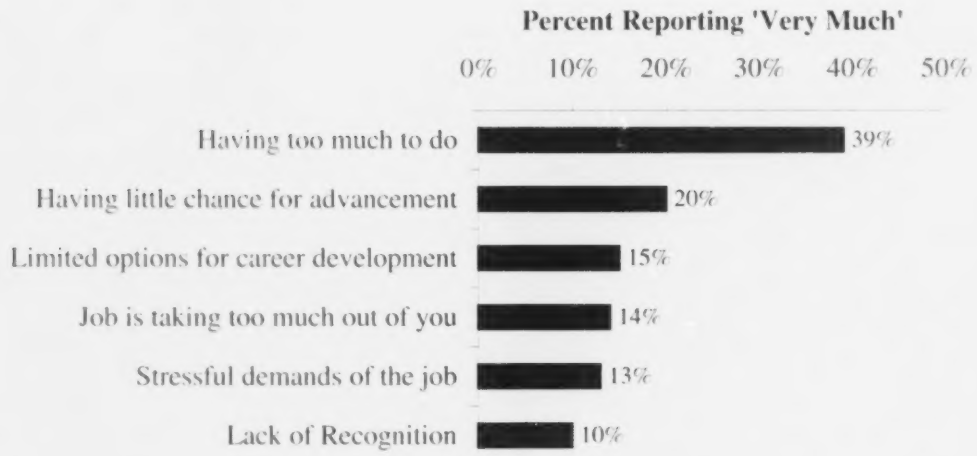
Results

Frequency of Challenges

This section on the nature and frequency of challenges among institutional researchers presents results from analyses based on individual survey items and computed scales.

Concerns about Current Job. Figure 1 identifies the top six specific aspects of their current job that institutional researchers describe as 'very much' of a concern. As shown, three of these concerns relate to work demands - having too much to do, the job is taking too much out of you, and stressful demands of the job. The other two frequently reported concerns relate to career advancement: having little chance for advancement and limited options for career development.

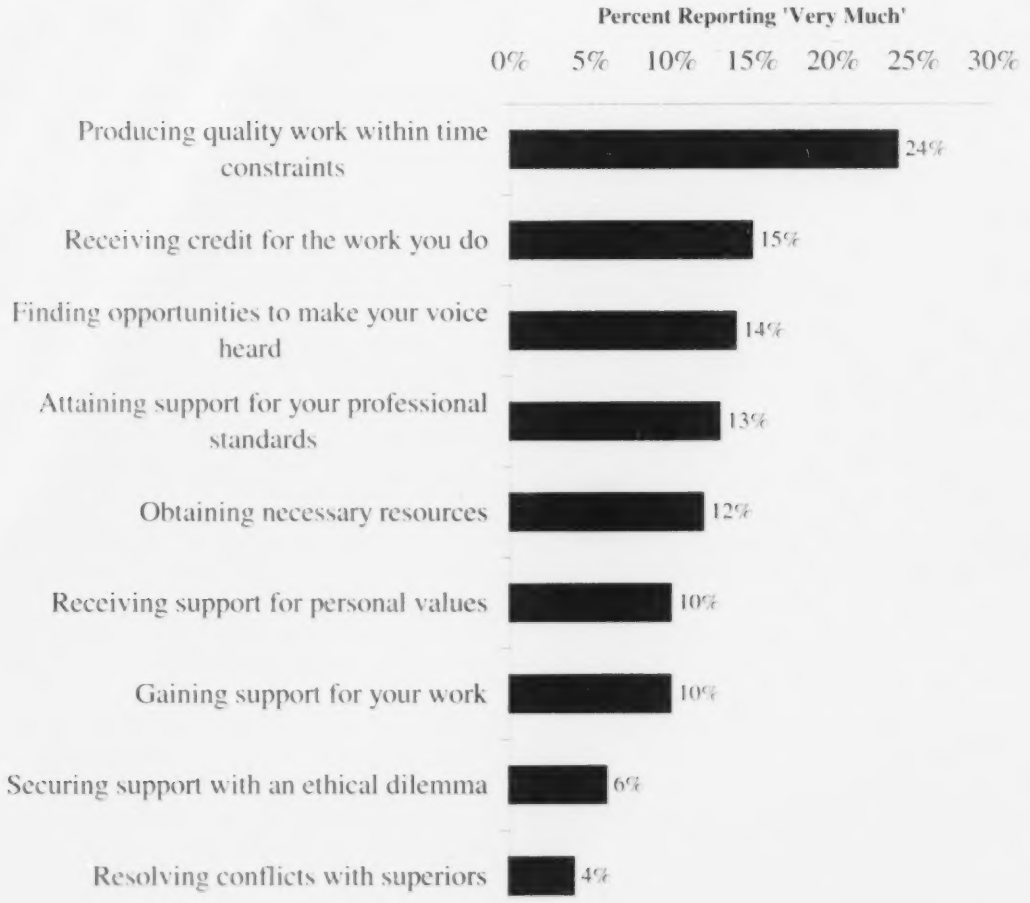
Figure 1
Institutional Researchers' Concerns about their Current Job



Challenges during Research Career. Figure 2 shows the percent who reported they experienced various challenges 'very much' during their career. These challenges refer to obtaining support for one's values and standards; securing resources to conduct the work; and obtaining support in resolving conflicts and ethical issues. As shown, 24 percent report that producing quality work

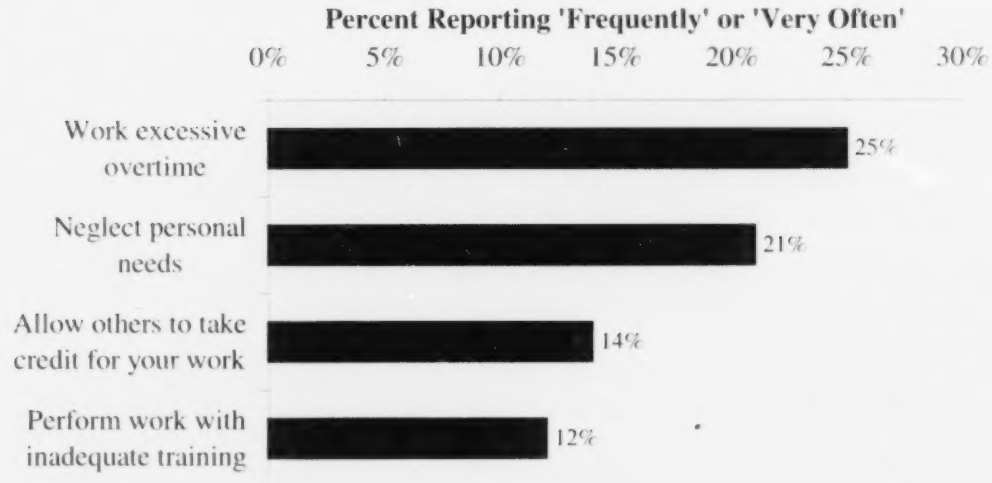
within time constraints has been 'very much' of a challenge. Between 13 and 15 percent also report the following issues have been 'very much' of a challenge during their career: receiving credit for work; finding opportunities to be heard; and attaining support for professional standards. These data identify potentially serious issues as these challenges threaten institutional researchers' professional status, job quality, and potential for advancement.

Figure 2
Institutional Researchers' Career Challenges



Pressure to Compromise. Figure 3 identifies the top four compromises respondents indicated they 'frequently' or 'very often' felt they had to make for their career. As shown, institutional researchers most frequently cited pressures related to work demands and professional integrity. Some 25 percent cited working excessive overtime; 21 percent reported neglecting personal needs; 14 and 12 percent respectively reported allowing others to take credit for their work and performing work with inadequate training.

Figure 3.
Pressures to Compromise Experienced by Institutional Researchers



Variation in Challenges

Bivariate analyses were conducted to answer the question: How do professional challenges vary by personal characteristics, level of position and use of resources? These analyses included t-tests, analysis of variance and the Student-Newman-Keuls post hoc test to determine where the significant differences occur among institutional researchers. These analyses were conducted with individual survey items and with computed scales.

Personal Characteristics and Professional Challenges. Item level analyses revealed no statistically significant relationships between gender and professional challenges. A statistically significant correlation was found, however, between level of education and securing support with an ethical dilemma ($F = 3.79$, $p \leq .05$). The Student-Newman-Keuls post-hoc test results indicated that this challenge was significantly higher among master's level researchers. Statistically significant correlations were also found between level of education and working excessive overtime ($F = 3.61$, $p \leq .05$), neglecting one's education ($F = 11.89$, $p \leq .001$), pressure to use inappropriate methodology ($F = 3.18$, $p \leq .05$), perform work with inadequate training ($F = 4.86$, $p \leq .01$), or to compromise integrity ($F = 3.41$, $p \leq .05$). The Student-Newman-Keuls post-hoc test results revealed that working excessive overtime was highest among master's and doctoral level researchers. In contrast, the pressures to use inappropriate methodology or to compromise integrity were highest among bachelor's level researchers.

Significant correlations were found between years of experience and the following challenges: the job is taking too much out of you ($r = .17$, $p \leq .05$), having too much to do ($r = .20$, $p \leq .01$), stressful demands of the job ($r = .20$, $p \leq .01$), working excessive overtime ($r = .17$, $p \leq .05$), neglecting family responsibilities ($r = .18$, $p \leq .01$), and neglecting personal needs ($r = .16$, $p \leq .05$).

Scale level analyses revealed no statistically significant relationship between gender and challenges. However, significant correlations were found between years of experience and overwhelming work demands ($r = .21$, $p \leq .01$) and work-family conflict ($r = .20$, $p \leq .01$). One way analysis of variance also revealed a statistically significant relationship between level of education and work-family conflict ($F = 3.78$, $p \leq .05$). The Student-Newman-Keuls post-hoc test results revealed that working excessive overtime was highest among master's and doctoral level researchers.

Level of Position and Professional Challenges. Results based on the individual survey items, revealed statistically significant differences between level of position and the following professional challenges that relate to work demands: the job is taking too much out of you ($F = 3.28$, $p \leq .05$); working excessive overtime ($F = 6.08$, $p \leq .001$); neglecting family responsibilities ($F = 4.11$, $p \leq .01$); and neglecting personal needs ($F = 3.47$, $p \leq .01$). Further, the Student-Newman-Keuls post-hoc test results indicated that these challenges were significantly higher among institutional researchers holding the highest level positions from dean to vice president.

Level of current position was also significantly related to minimal opportunity to use one's intelligence ($F = 2.72$, $p \leq .05$); job monotony or lack of variety ($F = 3.41$, $p \leq .01$; and pressure to lower one's standards ($F = 2.59$, $p \leq .05$). These challenges, which involve the intellectual quality and integrity of one's professional life, were generally highest among research analysts and associates.

Scale level analyses revealed statistically significant differences between level of position and two challenge scales: experiencing overwhelming work demands ($F = 3.19$, $p < .05$) and managing conflict between work and personal/family needs ($F = 6.35$, $p < .001$). The means were highest among those holding positions from dean to vice president. According to the Student-Newman-Keuls test results, the difference was statistically significant regarding managing conflict between work and personal/family needs.

Resources and Professional Challenges. T-test results documented the value of a mentor and a strong professional network in coping with professional challenges. Those who had a mentor were significantly less likely to report that the job was taking too much out of them ($t = 2.25$, $p \leq .05$) or that they were having difficulty in obtaining necessary resources for their work ($t = 2.05$, $p \leq .05$). Also, those who were part of a strong professional network were significantly less likely to report

the following concerns about their present job: little chance for advancement ($t = 1.97$, $p \leq .05$); limited options for career development ($t = 3.14$, $p \leq .01$); minimal opportunity to use one's intelligence ($t = 3.45$, $p \leq .001$); inadequate opportunity to show creativity ($t = 2.46$, $p \leq .05$); and job monotony or lack of variety ($t = 3.45$, $p \leq .001$).

Institutional researchers who report they are part of a strong professional network also report they are significantly less likely to experience pressure to make professional or ethical compromises, including to perform work with inadequate training ($t = 4.40$, $p \leq .001$); to present a false, less competent image ($t = 3.69$, $p \leq .001$); to sacrifice quality ($t = 2.16$, $p \leq .05$); or to treat others unfairly ($t = 2.20$, $p \leq .05$).

Further analysis with the challenge scales identified a statistically significant relationship between having a mentor and coping with limited career opportunity ($F = 4.13$, $p \leq .01$). This challenge was highest among those who did not have a mentor and lowest among those who had both a male and female mentor. Those who were part of a strong professional network also reported significantly less challenge in dealing with threats to quality standards ($F = 2.52$, $p \leq .05$).

Path Analysis Technique. Path analysis was employed to answer the following major research question: How well do personal characteristics, level of position, challenges and resources predict job quality and policy engagement? The original conceptual model included level of institution, two or four year, and type of institution, public or private, in which the institutional researcher worked. However, correlation analyses revealed no significant correlations between these variables and engagement in policy. Therefore, the institutional variables were deleted from the model.

Technically, the path-analytic technique assessed the direct and indirect effects of the exogenous variables, personal characteristics, on several endogenous variables - level of position, challenges and resources, and work-family conflict and the effects of these endogenous variables on

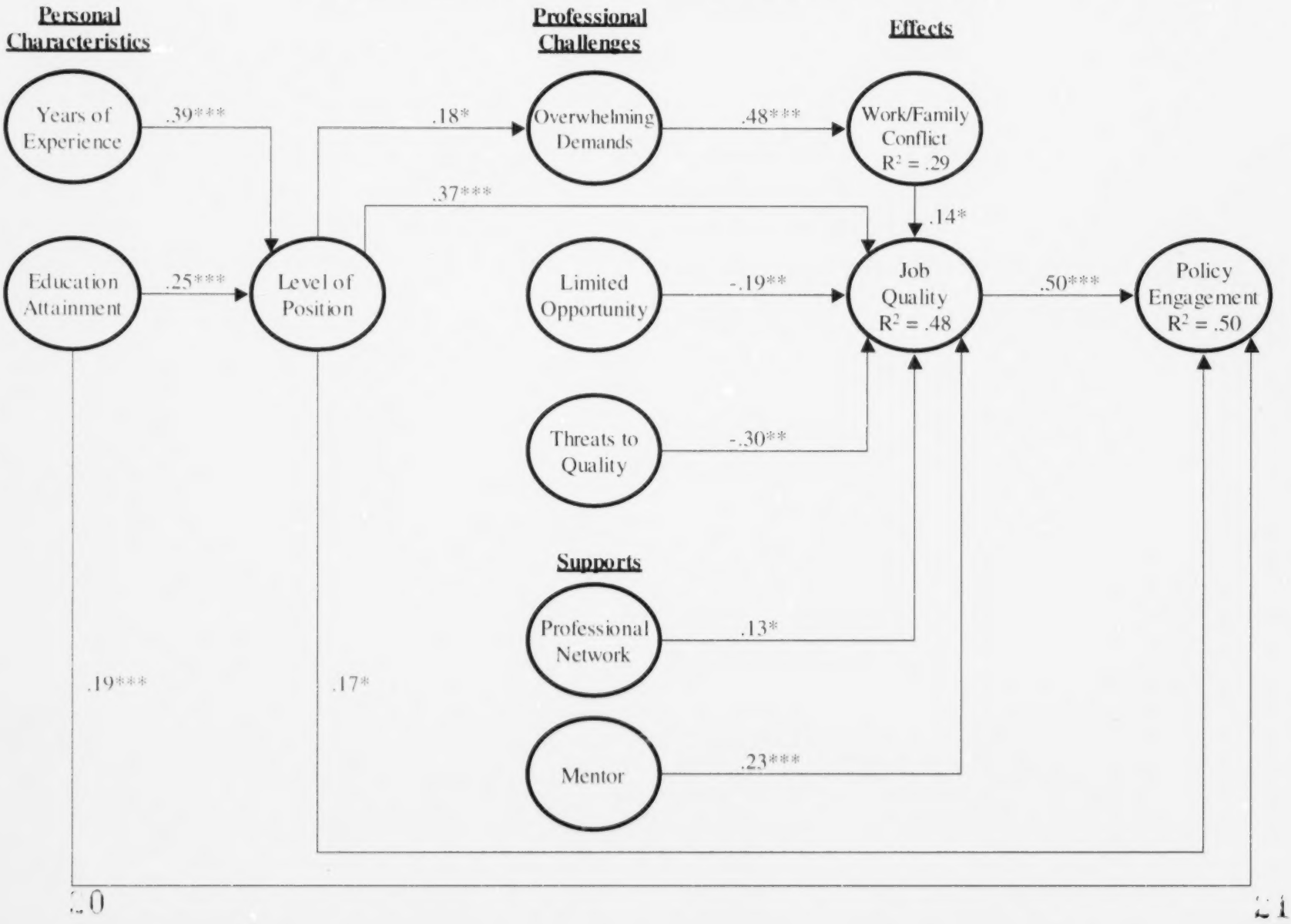
job quality and engagement in policy. Figure 4, on page 19, shows the results visually in a path diagram. The lines indicate the pathways that had beta-weights greater than .10, with the specific beta-weight indicated for each pathway. Each path coefficient is the beta-weight for the precursor variable on the endogenous or dependent variable. In an attempt to control for practical significance, when the standardized regression coefficient (beta-weight) for a particular path was less than .10 (Hackett, 1985), the path was dropped.

Path Analysis Results. As reflected in the path coefficients, educational attainment has a direct effect on policy engagement (p=.19). In addition, years of experience (p=.39) and educational attainment (p=.25) have direct effects on level of position and through this variable indirectly affect policy engagement.

All but one of the endogenous variables has a direct effect on job quality. In order of magnitude, these variables are: level of position (.37), mentor (.23), conflict between work and family (.14) and professional network (.13). In contrast, two variables: dealing with threats to quality standards (- .30) and coping with limited opportunity (- .19) have negative effects on job quality. Overwhelming demands indirectly affects job quality through work-family conflict. As indicated by the R^2 of .48, these variables explain 48 percent of the variance in job quality.

Two of the endogenous variables have direct effects on policy engagement: level of position (p=.17), and job quality (p=.50). The remaining endogenous variables affect policy engagement through job quality. The R^2 of .50 indicates that the direct effects of job quality and the direct and indirect effects of the other endogenous and exogenous variables predict 50 percent of the variance in policy engagement.

Figure 4. Path Diagram for Predicting Engagement in Policy



The calculations of the direct and indirect paths are presented in Table 2 on page 21. This causal analysis decomposes the correlation between two variables into three components: direct, indirect, and spurious. The direct and indirect components are summed to the total true causal effects whereas the spurious component is due to unexplained factors and is obtained by subtracting the total effect from the bivariate correlation coefficient. The direct effects are the effects that come directly from the precursor variable to the dependent variable, without being mediated by other variables in the model. The indirect effects are the effects of the precursor variable as operating through or mediated by other variables on the dependent variable.

For example, the indirect effect for level of position on engagement in policy equals the path coefficient of level of position to job quality ($p = .37$) multiplied times the path coefficient from job quality to policy engagement ($p = .50$) or .19. Further, as shown in Table 2, the zero order correlation between level of position and engagement in policy is .49. Path analysis documents that the direct and indirect effects respectively are .17 and .19. The total effect is .36 and the spurious effect is .49 - .36, or .13.

Correlations. As illustrated in Table 2, statistically significant correlations were found between engagement in policy and the exogenous variables: level of educational attainment ($r = .36$, $p \leq .001$), and years of experience ($r = .29$, $p \leq .001$). These coefficients indicate that institutional researchers with higher levels of education and more experience are more engaged in policy. Level of position has a moderately strong positive correlation of .49, $p \leq .001$, indicating that those in higher positions are more involved in policy development.

As noted previously in this paper, institutional researchers identified experiencing overwhelming demands as the most prevalent challenge in their current job. However, results from correlation analysis reveal that overwhelming demands has a positive correlation of .21,

$p \leq .01$ with policy engagement. Also, path analysis results show that job demands has a positive, indirect effect on policy engagement through conflict between work and family. In contrast, threats to quality ($r = -.23$, $p \leq .001$) and limited opportunity ($r = -.26$, $p \leq .001$) have negative correlations with policy engagement.

In terms of resources, having a mentor ($r = .16$, $p \leq .05$) and having a strong professional network ($r = .29$, $p \leq .001$) are positively related to policy engagement. Conflict between work and family is also positively correlated with policy engagement ($r = .25$, $p \leq .001$). Finally, job quality has the strongest positive correlation with engagement in policy ($r=.61$, $p \leq .001$).

Table 2. Path Analysis Results: Breakdown of Direct and Indirect Effects on Engagement in Policy

		Effects			
Path	**Bivariate r**	**Direct**	**Indirect**	**Total**	**Spurious**
Personal Characteristics					
Educational Attainment	.36	.19	.06	.25	.11
Years of Experience	.29	-	.07	.07	.22
Level of Position	.49	.17	.19	.36	.13
Challenges					
Overwhelming Demands	.21	-	.03	.03	.18
Threats to Quality	-.23	-	-.15	-.15	-.08
Limited Opportunity	-.26	-	-.09	-.09	-.17
Supports					
Mentor	.16	-	.12	.12	.04
Professional Network	.29	-	.07	.07	.22
Effects					
Conflict between Work and Family	.25	-	.07	.07	.18
Job Quality	.61	.50	-	.50	.11

Discussion

Results from this research confirm findings from previous studies regarding challenges institutional researchers encounter in their career. In this study, approximately two-fifths identified having too much to do as very much of a concern in their current job. Close to one-quarter also reported that producing quality work within time constraints was very much of a problem in their career. In an earlier study, Huntington and Clagett (1991) also reported excessive workload as one of the problems most frequently experienced by institutional researchers.

Other challenges that continue to confront institutional researchers involve political skills. Findings from this study document a negative relationship between coping with threats to quality standards and policy engagement. This finding confirms the wisdom of Chase's (1979) early recommendation that professional development programs be offered for institutional researchers to develop the required political and communication skills to become effective organizational specialists.

Recognition for the work accomplished also continues to be a problem for a substantial number of institutional researchers. In a previous study, Sanford (1983) identified 'effective invisibility' as one of two major sources of stress for institutional researchers. In the present study, 15 percent reported receiving credit for work as very much of a challenge and 14 percent reported they frequently or very often felt they had to allow others to take credit for their work. These results involve an ethical issue regarding attributing appropriate credit to the person who accomplishes the work. Matier, Sidle and Hurst's (1995) recommendation that institutional researchers exercise leadership in defining work and assuming new roles may enhance

institutional researchers' presence and influence and thus increase the possibility that appropriate credit will be give for work accomplished.

On a positive note, this study documents clearly that those who have a mentor or are part of a strong professional network are significantly less likely to experience many potential sources of stress on their job, such as: minimal opportunity to use one's intelligence, inadequate opportunity to show creativity, job monotony, or little chance for advancement. These positive effects of mentors and professional networks highlight the value of professional relationships. Such relationships have strong implications for institutional research leaders and professional associations seeking to enhance the professional development and effectiveness of new and experienced institutional researchers.

Recommendations

As noted previously, the goal of this research has been not only to identify and understand the challenges institutional researchers face but also to propose creative strategies to meet these challenges and thus enhance institutional researchers' professional status and effectiveness. Based on the study findings, the following recommendations are offered to achieve this goal.

- The institutional research profession should promote strong mentoring relationships. Professional associations should provide the structures for developing mentoring relationships. Institutional research directors and university administrators should provide resources and create opportunities to support mentoring relationships for institutional researchers, particularly those who are new to the profession.
- Institutional researchers should actively participate in professional associations and seek out colleagues for advice and support on a continuing basis. Regional and national associations

should place a high priority on using the organizations to strengthen professional networks for new and experienced researchers. In additional to annual meetings, the associations should seek new ways to support networks during the year.

- National and regional institutional research associations should continue and expand programs designed specifically to promote institutional researchers' career advancement. The need is indicated by results from this study in which participants identified having little chance for advancement and limited options for career development among their most frequent concerns about their present job.
- Institutional research directors should study the current nature and status of their research analyst and associate positions. Efforts should be made to ensure that these positions offer a rich professional experience with a high level of intellectual challenge and real opportunities for professional growth and development. Results from this study revealed that minimal opportunity to use one's intelligence, job monotony or lack of variety, and pressure to lower one's standards - challenges involving the intellectual quality and integrity of one's professional life - were generally highest among research analysts and associates.
- The institutional research profession should advocate that institutional researchers' jobs be structured with a high level of independence, intellectual vigor and professional integrity. Director's positions should be characterized by flexibility in establishing work priorities; authority in setting research agenda; freedom in deciding how work is accomplished and authority required to get the work done. All positions should offer opportunities for intellectual stimulation, creativity and career advancement. One of the most important findings of this study is that job quality, characterized by a high level of independence, has a strong positive effect on an institutional researcher's ability to influence policy development.

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Appendix A
Questionnaire Items Comprising the Professional Challenges Scale

Experiencing Overwhelming Demands (r=.89) *

When you think about your current job, how much, if at all, are the following items a concern for you?

a. The job is taking too much out of you
b. Having too much to do
c. Stressful demands of the job

Coping with Limited Opportunity (r=.89) *

When you think of your current job, how much, if at all, are the following items a concern for you?

a. Having little chance for advancement
b. Lack of recognition
c. Limited options for career development
d. Minimal opportunity to use your intelligence
e. Inadequate opportunity to show creativity
f. The job's monotony or lack of variety

Managing Conflict between Work and Family (r=.83) **

Do you feel you have had to make any of the following compromises to sustain your career?

a. Work excessive overtime
b. Neglect family responsibilities
c. Neglect personal needs

Dealing with Threats to Quality Standards (r=.80) *

Do you feel you have had to make any of the following compromises to sustain your career?

a. Lower your standards
b. Sacrifice quality

* Response Scale: 1 'Not at All' to 5 'Very Much'

** Response Scale: 1 'Never' to 5 'Very Often'

Appendix A
Questionnaire Items Comprising the Job Quality and Policy Engagement Scales

Job Quality (A=.86) ***

To what extent are the following items a rewarding part of your job?

a. Freedom to decide how to do your work
b. Being able to make decisions on your own
c. Authority you need to get the job done
d. Being able to work on your own
e. Authority to set your own research agenda
f. Flexibility to establish your work priorities
g. Freedom to decide how your work will be shared
h. Freedom to accept or reject superior's suggestions
i. Independent authority to hire persons of your choice
j. Authority to spend department budget as you wish
k. Supervisory support for professional development
l. Financial support for professional development

Engagement in Policy (a=.89) ***

Indicate the extent to which the following statements describe your role or the use of your work at your institution.

a. Initiate discussions on program planning and policy
b. Collaborate in program development
c. Consult on impending policy changes
d. Serve on planning and policy committees
e. Present your work at executive level meetings
f. Conduct follow-up studies on the impact of work
g. Work is disseminated at the VP and Presidential Level
h. Work is used in executive decision-making
i. Work effects program and policy changes